Air Resources Board

Comprehensive

Work Plan

1997

California Environmental Protection Agency

AIR RESOURCES BOARD

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September 1997

Executive Summary

What the Air Resources Board (ARB) hopes to achieve with this plan :

ARB's 1997 Comprehensive Work Plan is the framework for accomplishing the goals implicit in ARB's mission statement:

> ***To promote and protect public health, welfare, and ecological resources through effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the State.***

The context of this plan:

Purpose and scope: The Air Resources Board is the State agency responsible for improving and maintaining air quality in California. The ARB oversees all air pollution control efforts in California, including programs and activities of 35 local air pollution control districts. The Board has the authority and responsibility of ensuring that federal and state health-based air quality standards are achieved through a variety of controls for stationary, mobile, and small "area" sources of pollution.

This Plan: This 1997 Comprehensive Work Plan summarizes many of ARB's on-going programs, and focuses on major new and expanded activities needed to meet the challenges of the next four years.

Relationship to the State budget: Some of the new activities outlined in the plan will be supported by redirecting existing resources. Others will require resource augmentation if they are to succeed.

Key elements:

The key elements of this plan are the goals, objectives and strategies, which span near-term through long-term Board activities and commitments. The goals (summarized below) are interrelated and will guide ARB's progress toward healthful, clean air for all Californians.

Goal 1:
Continuously improve our understanding of the nature and causes of California's air quality problems.

ARB will sponsor ongoing research to improve the understanding of health and welfare effects of air pollution, including particulate matter (PM10 and PM2.5). ARB will also continue to be a leader in studying the causes of air pollution problems through ventures such as the collaborative San Joaquin Valley Air Quality Study. The development of new and improved testing procedures to improve the motor vehicle and consumer products emissions inventories also supports this goal. Finally, data management, emission inventory estimation, and air quality monitoring methods are being modified to meet the needs for better air quality information.

Goal 2:
Increase the effectiveness of adopted air pollution control strategies, and integrate these strategies with other regulatory processes.

Critical to realizing the full benefits of ARB programs is the implementation and enforcement of motor vehicle, fuels, and consumer products regulations. Implementation includes working with industry to facilitate and monitor progress in areas such as the low-emission vehicle and consumer products programs. Enforcement includes field inspections, in-use vehicle testing, roadside heavy-duty smoke and tampering inspections, and product and fuel testing. ARB will develop additional self-compliance manuals and administer training and certification programs to keep inspectors abreast of the latest techniques and equipment used to inspect emission sources.

Goal 3:
Promote the development of new technologies, and adopt control strategies to attain air quality standards and reduce public exposure to air toxics.

ARB will work with government agencies, industry and the research community to continue to develop new technologies and control strategies to meet the SIP emission reduction targets. ARB will work with U.S. EPA to gain agreement on national emission reduction strategies for interstate trucks, locomotives, marine vessels, pre-empted engines and equipment, and aircraft. We will work with transportation agencies to develop measures to mitigate emissions from growth in vehicle travel. In addition, we will develop strategies to further reduce emissions from consumer products and stationary sources. And, ARB will continue to support research into technologies that further reduce air pollution.

Goal 4:
Strengthen public education, stakeholder outreach, and quality improvement activities.

ARB will strengthen its efforts to educate the public about air pollution, its health impacts, and how personal choices make a difference for air quality. We will strengthen outreach to all of our stakeholders -- business, industry, schools, local government, and the public at large. ARB will work in partnership with air districts, industry groups, environmental and health organizations, and the transportation community. ARB will continue to solicit full public participation to ensure that the public's needs and concerns are addressed as new programs and regulations are adopted and implemented. ARB management supports a quality-focused "customer service" approach throughout agency programs and processes. ARB is committed to maintaining a creative, innovative work environment supported by ongoing training and the latest technology. ARB utilizes a project-based, team problem-solving approach to accomplish its mission.

Goal 5:
Assess the economic impacts of air quality programs, and assist businesses in meeting air quality objectives.

ARB will continue to conduct economic analyses and provide California businesses flexibility to achieve required emission reductions in more cost-effective and innovative ways. ARB will also provide timely information regarding clean air technologies. Expanding programs include permit streamlining, equipment pre-certification, business assistance, and pollution prevention.

ARB's Mission

The mission of the Air Resources Board (ARB) is to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the State.[1]

Vision

Our vision is to achieve healthful, clean air for all Californians through a partnership approach to air quality management.

[1]Sections of Health & Safety Code related to ARB's mission:

Section 39003: The California Air Resources Board is the State agency charged with coordinating efforts to attain and maintain ambient air quality standards, to conduct research into the causes of and solutions to air pollution in many areas of the State.

H&S Section 39500: It is the intent of the Legislature that the State Air Resources Board shall have the responsibility, except as otherwise provided in this division, for control of emissions from motor vehicles and shall coordinate, encourage, and review the efforts of all levels of government as they affect air quality.

Guiding Principles

ARB Serves All Californians : The air we breathe is of vital importance to every person in this State and to future generations. Thus, all Californians are our "customers."

Research and Strong Science : ARB uses the best available science to set health-based standards, adopt control strategies, and measure the results of California's air programs.

Cost-Effective Pollution Reduction : ARB pursues the most cost-effective and efficient approaches to achieve clean air. This principle is carried forth in all functions, whether technical or administrative.

Partnerships for Clean Air: ARB works closely with many partners to develop strategies to clean the air. ARB consults regularly with the public and other stakeholders through workshops, Board meetings, and the Internet. ARB also works with air districts and with the U.S. Environmental Protection Agency (U.S. EPA) to ensure a well coordinated effort to achieve clean air goals that reflects each agency's responsibility. And, ARB coordinates with the regulated community to develop workable approaches to air quality problems.

Environment of Excellence: The ARB management team supports a quality focused "customer service" approach throughout agency programs. ARB is committed to maintaining a creative, innovative work environment supported by ongoing training and the latest information technology. ARB utilizes a project-based, team problem-solving approach to accomplishing its mission.[2]

[2] ARB's annually-updated Training Plan supports this principle.

Board Description

11 Member Board Appointed by the Governor -- John D. Dunlap III, Chairman
Executive Office -- Michael P. Kenny, Executive Officer

Administrative Support -- personnel, finance, training
Air Quality & Transportation Planning -- SIP, State plans, transportation
Compliance -- surveillance, source testing, field enforcement
Communication -- public information & outreach
Environmental Technology -- technology certification
Legal Affairs -- legal issues, litigation
Legislative and Intergovernmental Affairs -- legislation, interagency coordination
Mobile Source Control -- emission standards for cars, trucks and off-road equipment
Mobile Source Operations --vehicle testing, certification and compliance
Monitoring and Laboratory -- monitoring for Ozone, NOx, PM10, CO, and HC
Ombudsman -- stakeholder outreach, business assistance
Research -- health, atmospheric, control measure and economic studies
Stationary Source -- toxic controls, fuels, consumer products, rule & technology review
Technical Support -- emissions inventory, modeling, meteorology, information systems

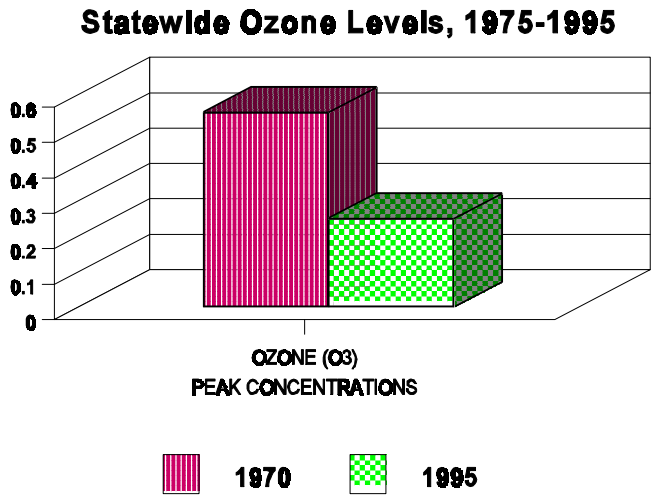
Brief History

1960 California Motor Vehicle Pollution Control Board is established.
1961 Positive Crankcase Ventilation (PCV) mandated by the California Motor Vehicle State Bureau of Air Sanitation.
1966 **First motor vehicle emissions standards** for HC and CO adopted by the California Motor Vehicle Pollution Control Board.
1967 **California Air Resources Board created** from the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation.
1967 Federal Air Quality Act of 1967 allows California to set and enforce its own emission standards for new vehicles.
1969 **First State ambient air quality standards are promulgated by California.**
1971 First national ambient air quality standards are promulgated by U.S. EPA.
1975 First two-way catalytic converters come into use.
1976 Smog check program begins.
1977 First three-way catalytic converter to control HC, NOx, and CO.
1978 Vapor recovery equipment installed at gas stations in urban areas of the state.
1978 Unleaded gasoline introduced.
1988 **California Clean Air Act** .
1990 **Federal Clean Air Act Amendments** adopt many of California's programs.
1993 California diesel fuel comes to market.
1994 **1994 State Implementation Plan** to achieve federal ozone standards.
1996 California Cleaner Burning Gasoline marketed statewide.

External Assessment Summary

California continues to lead the nation and the world in reducing emissions from motor vehicles, controlling pollutants from stationary sources, and developing environmental technology. Clean air strategies have encouraged industry to develop technologies -- for fuels, vehicles, consumer products, and industrial processes -- that pollute much less. Public/private coordination efforts are helping businesses develop and commercialize new environmental technologies. These programs also support the development of businesses that are clean as well as competitive.

As a result, during the past 25 years, California has made significant gains in reducing harmful air pollution. Since 1985, despite a 21 percent increase in California's population and even higher growth in driving rates, average peak concentrations of ozone (O3) have declined by more than 30 percent.[3] Overall, ozone has decreased Statewide by more than 50 percent between 1970 and 1995. ARB's requirements for cleaner vehicles and fuels, and the introduction of oxygenated gasoline, have brought most of the state into compliance with federal standards for carbon monoxide, which declined by more than 60 percent between 1970 and 1995. Monitored levels of particulate matter (PM) in urban areas have decreased by 25 percent since 1990.[4] Finally, air toxic emissions have been reduced by almost 60 percent since 1986 as a result of State control measures for cancer-causing pollutants, such as benzene, and through voluntary actions.

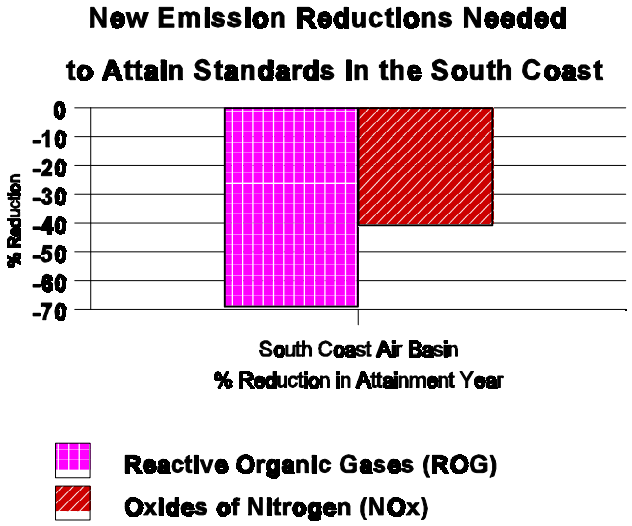


Despite these improvements in air quality, further reductions in air pollutant emissions are needed in order to attain State and federal health-based air quality standards. California still dominates the U.S. smog "top ten," with five of the nation's highest ozone level areas and eight of the areas with the most frequent violations of federal

[3]Ozone, or smog, is formed when reactive organic gases (ROG) and oxides of nitrogen (NOx) react in sunlight. (The peak ozone season is summer.) ROG and NOx are emitted from many activities, including: operating motor vehicles, applying solvents and coatings, and combustion processes. Ozone poses health problems when its concentration in the air that people breathe exceeds health-based standards.

[4]Particulate matter (PM) is a complex mixture of pollutants, such as nitrates, sulfates, heavy metals, smoke, and dust. Current State and federal regulatory requirements target PM10 (particles less than ten microns in size) which are easily inhaled into the lung.

health-based air quality standards.



California's population is projected to increase by more than 30 percent between 1990 and 2010 (the year in which it is anticipated that the federal ozone standard will be attained in the South Coast Air Basin -- the State's smoggiest region). The air pollution control program already in place will help offset that growth and reduce emissions by an additional 20 to 35 percent. However, even more reductions from new measures and strategies are needed to attain the standard. In the South Coast, it will be necessary to reduce emissions of ROG by an additional 70 percent, and NOx by an additional 40 percent, through new programs.

The challenge before the ARB is to continue leading the way toward clean air and to maximize its effectiveness in accomplishing air quality improvements, while keeping costs to industry and consumers at a minimum. Major challenges on the horizon include: addressing the revised federal air quality standards for ozone and particulates; reducing emissions from heavy-duty and off-road vehicles; continued efforts to minimize pollution from light-duty vehicles, small and industrial equipment, consumer products, stationary sources, and other sources of air pollution; and reducing public exposure to toxic air contaminants.

Partnerships are needed to meet air quality targets in the most cost-effective and efficient ways. Increased awareness of the need for responsibility on the parts of industry, government, and the public should help enlist the assistance of partners in meeting air quality goals. The ARB will continue to enhance awareness and environmental responsibility through expanded public outreach that provides clear, usable information. In addition, the practice of developing programs and regulations through an open, public process helps ensure that every point of view is considered. ARB's efforts to increase interaction through "stakeholder" forums and workshops, as well as the use of new computer and information technology, will help ensure a high level of involvement.

The Board will also continue to demonstrate its own ongoing partnership efforts. More than ever, the ARB carefully considers how its actions affect the economy. Initiatives such as certifying environmental technologies, providing market incentives, enhancing business assistance, and integrating State and federal requirements, make good environmental as well as sound economic sense.

ARB Mandates

***Background**:* ARB is the State agency charged with overseeing California's air pollution control program. The primary focus is achieving State and federal health-based air quality standards set by the U.S. EPA (federal standards) and by ARB (State standards). Both State and federal law require steady progress towards achieving air quality standards. Federal law also provides for attainment deadlines, while State law requires that State standards be attained as expeditiously as possible. ARB must determine whether each region of California is meeting air quality standards, and identify the nature of air pollutant transport between regions. In addition, the ARB is charged with air quality planning and reporting responsibilities under federal and State laws. We are required to ensure that pollutant-specific plans for attaining air quality standards are technically sound and meet legal requirements. ARB must formally review and approve federal air quality plans before they are submitted to the U.S. Environmental Protection Agency, and must take similar action on state plans.

The Board's primary legal mandates require us to:

- Make continuous and expeditious progress toward attainment of federal and State air quality standards throughout California.
- Attain federal air quality standards by the applicable deadlines.
- Continue California's progress in reducing public exposure to toxic air contaminants.
- Implement and oversee specific air pollution control programs necessary to achieve and maintain air quality standards.
- Carry out planning activities that meet federal Clean Air Act requirements.
- Develop revised State Implementation Plans (SIPs) for any new federal air quality standards adopted by U.S. EPA.
- Carry out planning activities that meet State Clean Air Act requirements.

Goals, Objectives, and Strategies

Goal #1: Continuously improve our understanding of the nature and causes of California's air quality problems.

Background: To understand the nature and causes of California's air quality problems, the ARB maintains an extensive network of air quality monitors and an up-to-date inventory of air pollutant emission sources. Using these data, as well as extensive meteorologic and demographic data, the ARB models and forecasts future air quality. In addition, the ARB oversees a wide variety of studies to determine the effect of air pollution on public health.

Objective 1.1 Public health: Improve understanding of the relationship between air pollution and adverse health effects.

Background: ARB-sponsored research activities include clinical, epidemiological and laboratory studies. Utilizing the evidence gathered from these studies and other research, the ARB reviews air quality standards and recommends needed changes consistent with the protection of public health and welfare. In addition, the ARB assesses exposure to air pollution, including toxic air contaminants. In coming years, particular emphasis will be placed on the following strategies:*

Strategies:

- ***Particulates:*** Research the cause-and-effect relationships between respirable particulate matter (including PM10 and PM2.5 [5]) and mortality, disease, and other health effects. Increase understanding of the specific mechanisms by which these particles cause damage, and work to determine which components are most harmful.

- ***Long-Term Exposure:*** Determine how long-term exposure to ambient levels of ozone, PM10, PM2.5, and NO_2[6] affect lung development and growth. Continue the Childrens' Health Study measuring pollutant exposure, lung function and other health indicators in a group of approximately 5,000 children over a 10-year period.

- ***Toxic Air Contaminants:*** In conjunction with other state agencies, complete health risk assessments and evaluations of exposures for pollutants of concern,

* In order to fully accomplish these objectives, additional resources will be required.

[5]PM10 = particulates 10 microns or smaller, PM2.5 = particulates 2.5 microns or smaller.
[6]NO_2 = nitrogen dioxide.

including diesel exhaust. Continue to evaluate new data and health studies as they become available to judge which pollutants need complete risk assessments.

- ***Scientific Review Panel (SRP):*** The SRP is an appointed, nine-member panel of distinguished scientists whose mission is to review the exposure and health risk assessments of compounds proposed for identification as toxic air contaminants. The SRP will continue to review reports, as well as the data used as the basis for the reports, to ensure that they are scientifically sound. Based on the reports, the SRP will also continue making recommendations to the Board as to whether compounds should be identified as toxic air contaminants.

Objective 1.2 Monitoring: Determine the magnitude of air pollution in California and progress in meeting air quality standards.

***Background*:** The ARB monitors for all of the criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, particulates, sulfur dioxide, sulfates, and lead and analyzes the chemical composition of pollutants and pollutant precursors. In addition, ARB has a network of toxic air contaminant monitors. Air quality data is needed to determine the extent of the pollution problem, to assess how well our control programs are working and to forecast future air quality. New additions to ARB's air quality program will include:

Strategies:

- ***PM10 and PM2.5*:** Continue PM10 monitoring and establish a PM2.5 monitoring network to gather data needed to address the new federal PM2.5 standards. Develop new monitoring protocols as instrument manufacturers respond to ARB's need for more detailed data. Identify specific sources and causes of high concentrations by analyzing the size and chemical composition of the particulates.

- ***Electronic Data Accessibility:*** Provide on-line access to real-time and historic air quality data from ARB monitoring sites to air districts, contractors, universities, and the interested public. Utilizing the Internet and other electronic media, provide readings of criteria pollutants monitored throughout the state including: ozone, carbon monoxide (CO), NO2, and PM10, and key meteorologic indicators. Complete the system in 1997-98. Expand the system as new monitoring sites are added.

- ***Special Air Quality Studies*:** Participate in the 1997 Southern California Ozone Study, a cooperative in-depth monitoring study to better understand the dynamic relationships among air pollutants, atmospheric chemistry, and meteorologic conditions. In addition, participate in the California Regional Particulate Matter Air Quality Study, a cooperative, state-of-science study of PM10 and PM2.5 in central California.

Objective 1.3 Emissions inventory: Determine the nature and magnitude of air pollution sources.

Background: The ARB works with air districts, business, and industry to collect and compile the most accurate and complete information available on air pollutant and precursor sources, including stationary, mobile, and area sources. In addition to updating, publishing and maintaining this up-to-date statewide emissions inventory, the following enhancements are envisioned:

Strategies:

- ***Statewide Inventory:*** Legislation enacted in 1996 requires the Board to approve a statewide emissions inventory by January 1, 1998, and every three years thereafter. ARB staff will hold workshops and incorporate the latest available source information for approval of the inventory by the Board.

- ***Mobile Source Inventory Improvements:*** Taking advantage of newly available motor vehicle data, the ARB will investigate and apply the latest information to improving the mobile source inventory (including revised characterizations of: vehicle use, vehicle emission rates, speed and temperature adjustments, better representations of fuel evaporation, and benefits of cleaner burning gasoline).

- ***Stationary and Area Source Inventory Improvements:*** Improve the stationary source inventory by incorporating new emissions data as they become available, revising estimation methods for area source emissions, and including estimates for small, point source emissions.

- ***Particulates - PM10 and PM2.5:*** Improve the particulates emission inventory by incorporating new information about PM sources, including chemical composition, size distribution, and seasonality of the emissions.

- ***Toxic Inventory Improvements:*** Implement and maintain a new, integrated software program that allows industry and air districts to manage and submit air toxics emission data electronically.

- ***Reactivity:*** Investigate reactivity of ozone and PM precursor compounds emitted from stationary and mobile sources, and integrate data gained with ARB's emission inventory to support the development of reactivity-based control strategies.

Objective 1.4 Modeling and forecasting: Forecast future air quality based on current and projected control strategies.

Background: ARB provides ozone modeling support to air districts that is needed to develop attainment plans and analyze control strategies. At this time, no fully integrated particulate and ozone model exists to evaluate particulate matter control strategies.

Strategy:

- ***Particulates Model:*** Sponsor research to further advance knowledge about the formation of particulates in California, both PM10 and PM2.5. Using this research, develop and apply new models to forecast future particulate levels.

- ***Prescribed Burning:*** Increase ARB's capabilities to model and forecast air emissions from current and projected forest and land management prescribed burning activities.

Goal #2: Increase the effectiveness of adopted air pollution control strategies, and integrate these strategies with other regulatory processes.

***Background*:** ARB and the air districts implement and enforce a variety of measures to reduce pollution from mobile, stationary, and area sources in California. To support enforcement, ARB develops and adopts test methods and certification procedures for a variety of sources. Additionally, ARB maintains integrated databases of enforcement actions to make them accessible and useful to compliance decision-makers.*

Objective 2.1 Implement and enforce mobile source strategies.

Strategies:

- ***Motor Vehicle Certification:*** Revise ARB's certification regulations to provide vehicle manufacturers more flexibility in the certification application process and greater responsibility for in-use testing. Strengthen ARB's role in testing oversight while maintaining its current in-use compliance program.

- ***Heavy-Duty Vehicles*:** Resume enforcement of the Heavy-Duty Vehicle Inspection Program[7] and implement the Periodic Smoke Self-Inspection Program[8] for heavy-duty trucks and buses.

- ***Aftermarket Parts*:** Ensure that in-use emissions from vehicles remain at acceptable levels by implementing appropriate emission performance criteria for specialty and replacement "aftermarket" parts.

Objective 2.2 Implement and enforce stationary source, fuel, and consumer product strategies.

***Background*:** While authority to regulate emissions from stationary sources rests primarily with local air districts, the ARB provides guidance through efforts such as reviewing and commenting on amendments to existing rules, as well as assisting the districts in implementing new federal and state legislation related to stationary sources. ARB works to provide compliance flexibility and to eliminate overlapping and duplicative requirements that add to the cost of implementation, but do not provide additional air quality benefits. In addition, ARB provides technical assistance to districts and works with districts to review and revise RACT & BARCT[9] guidelines.

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[7]Authorized by Health and Safety Code section 44011.6 et seq., subsequent to the adoption of revised program regulations (13 CCR 2180 et seq.).
[8]Authorized by Health and Safety Code section 43701 et seq., subsequent to the adoption of revised program regulations (13 CCR 2190 et seq.).
[9]RACT = reasonably available control technology and BARCT = best available retrofit control technology.

ARB also implements and enforces its adopted regulations for consumer products and motor vehicle fuels.

Strategies:

- ***Title V****:* Continue to work with U.S. EPA and the air districts toward the cost-efficient integration of the federal Clean Air Act's Title V permitting requirements with California's existing program.

- ***Emission Credits:*** Provide for compliance flexibility by adopting regulations and guidance for districts on how to allow the use of emission reduction credits in lieu of meeting district control requirements consistent with state and federal law.

- ***Streamline Permitting and Enforcement:*** Continue to help streamline and improve air district permitting and enforcement programs to ensure that permitted stationary sources meet applicable air quality regulations. Conduct program evaluations of district programs, perform inspections of stationary sources, assist districts in compliance investigations and surveillance, and provide assistance to sources on effective compliance methods.

- ***Certification*****:** Certify gasoline vapor recovery equipment, cargo tanks, abrasive blasting material, and independent contractors pursuant to adopted statutes and regulations to provide maximum emission reductions.

- ***Fuel Compliance Testing:*** Implement fuels compliance testing requirements for utility lawn and garden engines and heavy-duty, off-road diesel engines.[10]

- ***Fuel and Additive Certification:*** Continue to evaluate and process requests for evaluations of: fuel and additive certifications; the effects of fuel composition on emissions; and specifications for alternative fuels (specifically, LPG and CNG[11]) to implement motor vehicle fuels regulations.

- ***Cleaner Burning Gasoline*****:** Continue to closely monitor the Cleaner Burning Gasoline Program to ensure its continued successful implementation.

- ***Consumer Products Compliance Testing*****:** Develop additional test methods and continue to implement testing of consumer products.

[10]Title 13, Chapter 9, Articles 1 and 4 of the California Code of Regulations
[11]LPG = liquid petroleum gas; CNG = compressed natural gas.

Objective 2.3 Reduce emissions of toxic air contaminants.

***Background*:** Since 1983, ARB's toxic air contaminant control program has reduced emissions from over 7,000 stationary sources in the state, as well as decreasing toxic emissions from motor vehicles. The ARB develops and implements control measures for identified toxic air contaminants, and assists business and industry in reducing toxic exposure through risk reduction audits. Additional future program activities, contingent in part on additional resources, include:

Strategies:

- ***Risk Assessment**:* Implement the recommendations of the Risk Assessment Advisory Committee[12] pertaining to the evaluation of air toxic exposures and risks. Implement the Office of Environmental Health Hazard Assessment's Risk Assessment Guidelines[13] that are designed to provide health values and consistency for use in air toxics programs.

- ***Toxic Control Measures**:* Implement adopted air toxic control measures, including updating the measures for chrome plating and certain chemical sterilizers. Participate in the U.S. EPA's process to develop "maximum achievable control technology" (MACT) standards for toxic air contaminants to ensure that these standards are sufficiently protective of public health and that they provide the flexibility needed to integrate smoothly with California's program.

- ***Risk Reduction Audits:*** Complete and distribute Toxic Air Contaminant (TAC) Risk Reduction Audit and Plan General Guidelines. Complete specific audits and plans for the following categories: aerospace, autobody refinishing, chrome plating, dry cleaning, gasoline service stations, solvent cleaning, and degreasing.

- ***Diesel:*** Complete the evaluation and identification of diesel exhaust as a possible toxic air contaminant.

Objective 2.4 Provide statewide training programs to assist government agencies and industry in complying with air pollution rules and regulations.

Background: The ARB has provided training courses for a number of years that help industry and enforcement personnel remain current on technology and regulatory developments. Classes cover various types of control equipment and air pollution sources, and emphasize maintenance and self-inspection techniques that help ensure compliance.

[12]Established pursuant to SB 1082 (1993). Governor's Executive Order W-137-96 requires all Cal/EPA boards and departments to incorporate this committee's recommendations into their strategic plans.
[13]Required by Senate Bill 1731 (1992).

Strategies:

- ***Training Program:*** Continue to provide an innovative and timely multi-media, statewide training program to assist government inspectors and industry operational staff in complying with California's air pollution rules and regulations.

- ***Training Materials:*** Update training materials, brochures and handbooks, incorporating new advanced technologies.

- ***Self-Inspection:*** Provide maintenance and self-inspection techniques through compliance assistance materials that businesses and industries can use to comply with regulations.

Objective 2.5 Coordinate with other agencies to further air quality efforts and successfully resolve issues.

Background: California and federal air quality requirements sometimes overlap. There are instances where meeting multiple requirements would result in additional costs without a commensurate air quality gain. ARB works closely with U.S. EPA and others to minimize conflicting and duplicative requirements.

Strategies:

- ***Federal Government Coordination:*** Work with U.S. EPA to ensure that air programs in California meet federal Clean Air Act requirements, including the following activities:

    - *EPA Rule Review:* Work with U.S. EPA to streamline the rule review process while meeting federal regulations to avoid the imposition of sanctions and to gain timely approval of the rules by U.S. EPA.

    - *Federal Air Toxics Program ("Title III"):* Work with U.S. EPA and California stakeholders to integrate the federal air toxics program with California's air pollution control program, while preserving the environmental benefits of each.

    - *Fuels:* Continue to work to eliminate overlap and duplication between U.S. EPA and ARB fuel regulations.

- ***State Coordination:*** Continue to work closely with State agencies affected by air quality requirements and plans to resolve issues and seek beneficial solutions to shared concerns (e.g., Caltrans, the California Energy Commission, and the Departments of Consumer Affairs and Pesticide Regulation).

- ***Western States Coordination*:** Participate in efforts to share technical information, provide professional training, and discuss policy issues of common concern to western states. Continue to coordinate with regional partners to

implement the recommendations of the Grand Canyon Visibility Transport Commission.

- ***Regional Transportation Coordination*:** Participate in the regional air quality and transportation planning and consultation processes in California's nonattainment areas; contribute information and expertise to foster full consideration of air quality objectives in regional transportation and land use analysis and decision-making.

- ***Local Government Coordination*:**

    - Participate in air district activities to develop plans, regulations and programs that improve air quality effectively and efficiently.

    - Coordinate with cities and counties to assist and support the implementation of cost-effective transportation and land use strategies that reduce motor vehicle emissions, particularly related to projects funded with motor vehicle registration fees.

- ***International Coordination***: Participate in joint problem-solving, training and technology projects, such as the Trans-Border Emissions Inventory Project between the border states and Mexico, to assist Mexico in developing a comprehensive emissions inventory.

Goal #3: Promote the development of new technologies, and adopt control strategies to attain air quality standards and reduce public exposure to air toxics.

Background: As California works toward meeting federal and State air quality requirements, new approaches must be found for reducing emissions. In order to achieve long-term air quality goals and mandates, we must ensure that new clean-air technologies are developed and implemented. New technologies are key to the control strategies in our "road map" for clean air -- the 1994 California State Implementation Plan (SIP). Current pollution controls are effective, but they are not sufficient to meet air quality standards in many areas. The SIP, the State's blueprint for attaining the federal ozone standard, commits to the development and implementation of a number of new motor vehicle, fuel, consumer products, industrial/commercial, and pesticide measures designed to reduce emissions. These measures are to be adopted and implemented by the ARB, other State agencies (e.g., the Department of Pesticide Regulation and the Bureau of Automotive Repair), federal agencies, and local air districts. In addition, the ARB will continue to identify and implement strategies to reduce public exposure to toxic air contaminants that present a risk to public health.*

Objective 3.1 Promote the development of new technologies to meet Clean Air Act requirements in a cost-effective manner.

***Background*:** Development of new technologies to solve air quality problems has been an integral part of California's success in reducing air pollution. This has included control technologies as well as technological improvements in the measurement and analysis of air pollution. ARB's regulations have historically challenged industry and stimulated significant technology gains that have resulted in long term energy and cost savings in many instances. In addition, ARB promotes the development of new emission reduction technologies through research coordinated with that of other public and private research organizations.

Strategies:

- ***Symposium for Clean Transportation Technologies:*** Host an international forum to assess worldwide progress on the next generation of transportation technologies during 1997. Investigate promising technologies to support development of the SIP measures for advanced technology for mobile sources.

- ***Zero-Emission Vehicles:*** Support the phase-in of zero-emission vehicles (ZEVs) by fulfilling commitments for tasks that are required under the Memoranda of Agreement between ARB and the seven largest automakers. Promote the sale and use of ZEVs by promoting the development of needed infrastructure, removing barriers to the introduction of ZEVs, and assisting in market development.

- ***On-Board Diagnostic Systems:*** Coordinate with vehicle manufacturers and other groups to promote the development of more sophisticated on-board diagnostic systems for motor vehicles to detect and identify the causes of emissions problems while vehicles are in operation.

- ***ICAT Program:*** Support the development and introduction of new emissions-reducing technologies through ARB's "Innovative Clean Air Technology" (ICAT) program.

- ***Alternatives to Rice Straw Burning:*** Work with California's agricultural community to develop new uses for agricultural wastes, such as rice straw, to minimize air pollutant emissions from burning.

- ***Indoor Air Pollution:*** Sponsor air quality research to identify indoor pollutant mitigation measures and develop and distribute guidelines for reducing exposure. Promote the development, demonstration, and use of at least three new technologies in the next four years to reduce indoor pollutant emissions.

Objective 3.2 Develop new regulations and programs to further reduce emissions from motor vehicles, as committed in the 1994 SIP.

Background: ARB's mobile source program is the cornerstone of California's strategy to achieve cleaner air, and its elements affect almost every kind of vehicle. Regulations already adopted have resulted in substantial reductions in vehicle emissions. However, additional measures are needed to attain air quality standards. New mobile source regulations identified in the SIP include the following:

Strategies:

- ***Year 2003 Light-Duty Vehicle Strategies****:* Adopt new strategies by 2000 that will gain additional emission reductions from light-duty vehicles after 2003, beyond the emission reductions that will occur as low-emission vehicles are phased in during the next five years.

- ***Medium-Duty, Low-Emission Vehicles:*** Adopt revisions to accelerate implementation of the regulation requiring future new medium-duty vehicles to meet the Ultra Low Emission Vehicle (ULEV) Standard.

- ***Heavy-Duty Vehicles:*** Work with industry and U.S. EPA to develop federal heavy-duty vehicle emission standards, incentives for the early introduction of low-emission technology, operational controls, and market-based programs to reduce emissions of oxides of nitrogen and particulate matter. Meet SIP commitments for adoption of State and national standards and other measures that will continue to reduce heavy-duty vehicle emissions as scheduled.

- ***Off-Road Vehicle Emission Standards:*** Lead a cooperative effort with

industry and the U.S. EPA to develop and implement further State and federal strategies for non-highway vehicles to meet the emission reduction targets of the SIP.[14]

- ***Accelerated Vehicle Retirement:*** Develop and facilitate the implementation of accelerated vehicle retirement programs that provide incentives for the voluntary retirement of older, higher-emitting cars and trucks. These programs include:

  - *Light-Duty Vehicles:* The M-1 measure in the 1994 SIP calls for the creation of the "Accelerated Vehicle Retirement Program." This measure is also supported by legislation.[15] The ARB will identify and implement strategies to meet the SIP commitment.

  - *Heavy-Duty Vehicles:* The M-7 Measure in the 1994 SIP identifies a program to encourage the accelerated retirement of heavy-duty diesel vehicles in the South Coast Air Basin. The ARB will identify strategies to meet the emission reduction target of this commitment.

- ***Transportation Measures:*** Work with transportation agencies to develop and implement the new transportation measures in the SIP that mitigate emissions from growth in vehicle travel. These programs include:

  - *Advanced Transportation Technologies:* Support the expansion of new technologies that improve consumer access to goods and services while reducing congestion and emissions. Examples are teleconferencing, intelligent transportation systems, and zero-emission vehicle infrastructure.

  - *"Smart Shuttle" Transit:* Support funding and implementation of "third tier" transit shuttle systems to act as feeder systems to rail transit and link high-activity areas in southern California.

  - *Market Incentives:* Provide technical assistance to transportation agencies as they consider the feasibility of market-based transportation pricing measures that reduce congestion and emissions.

Objective 3.3 Develop new regulations and programs to further reduce

[14]Non-highway vehicles include: farm and construction equipment, in-use locomotives, utility engines, pleasure boats, and marine vessels.

[15]Senate Bill 501 was enacted in 1995, directing ARB to develop regulations by June 30, 1997, for the implementation of a light-duty vehicle retirement program. The regulations required by SB 501 are also to be applicable to accelerated vehicle retirement programs operating in other areas of California.

emissions from consumer products.

Background: Currently, 27 consumer product categories are subject to ARB regulations, out of a total of more than 200 categories. These 27 categories represent about 50 percent of the total emissions from consumer products and architectural coatings. The 1994 SIP commits ARB to adopt and implement additional strategies that further reduce emissions from consumer products and architectural coatings.

Strategies:

- ***SIP Measures for Consumer Products:*** Achieve the SIP commitment for an overall 85 percent reduction in emissions of volatile organic compounds (VOCs) from consumer products in three phases: "near-term" through existing regulations; "mid-term" through reductions from consumer products not yet regulated; and "long-term" through the use of technological advances and innovative strategies, such as market incentive programs.

- ***Innovative Consumer Products Programs:*** Initiate the evaluation and development of innovative programs to further reduce consumer product emissions, in coordination with the "Consumer Products Working Group." These strategies include expansion of the "Alternative Control Plan," emissions trading program, other market incentive approaches, environmental labeling, and public education.

- ***Architectural Coatings:*** Initiate a comprehensive program to control emissions from architectural and industrial maintenance coatings. Conduct a new survey of these products sold in California. If appropriate, develop new, or revise existing, control measures to further reduce emissions from this source category.

- ***Perchloroethylene*:** Evaluate the use and trends of perchloroethylene, an identified toxic air contaminant, in consumer products. Increasing use may pose a public health risk.

- ***Reactivity**:* Evaluate the use of "reactivity"[16] as a component of consumer product control measures, in coordination with the Consumer Products Working Group. If appropriate, incorporate reactivity considerations into consumer product control measures.

Objective 3.4 Develop measures and programs to further reduce emissions

[16]"Reactivity" is the tendency for VOCs to form ozone within a given time frame. Consumer products contain varying amounts and types of VOC, which react in different ways to form ozone pollution.

from stationary sources.

Background: Authority to regulate emissions from stationary sources of pollution (such as power plants and factories) rests primarily with air districts. ARB provides guidance in reducing these emissions through a variety of activities, including reviewing district permit and regulatory actions, and preparing rules for specific source categories to provide the most cost-effective and technologically feasible emissions reductions.

Strategies:

- ***Rule Review:*** Continue to review air district rules to ensure that they are effective and consistent with applicable laws and requirements.

- ***Electricity Restructuring:*** Coordinate with the California Energy Commission, Public Utilities Commission, local air districts, and electric utilities in response to electricity restructuring to preserve emissions reduction benefits of existing rules and seek additional opportunities for reducing emissions from electrical generation sources.

- ***Control Technologies for PM10 and PM2.5:*** Complete technology review of potential control technologies for further emissions reductions from stationary sources to meet existing PM10 standards and the new federal PM2.5 standards.

Goal #4: Strengthen public education, stakeholder outreach, and quality improvement activities.

Objective 4.1 Increase understanding of air pollution problems and encourage personal responsibility for improving air quality.

Background: ARB provides information to the public in a number of ways. Press releases provide current information for the news media. ARB produces and distributes informational materials dealing with specific air quality topics that support "air-wise" decisions in the daily lives of California citizens. In addition, ARB provides presentations at a wide variety of forums to present in-depth information on air quality issues and ARB's efforts to reduce air pollution. Because of the complexity of air pollution, the information is sometimes difficult for the public to understand. To address this need, ARB's public education and outreach efforts will be strengthened in the coming four years in the following areas:*

Strategies:

- ***Progress Reports***: Provide the public with periodic reports on significant air quality accomplishments, current issues, and the general progress of California's air pollution control efforts from year to year.

- ***Awareness Campaigns***: Conduct multi-media public awareness and outreach campaigns that present a coherent message about select, significant subject areas that are important to the state's air quality goals and aimed at reaching a broad cross-section of California citizens and interest groups.*

- ***School Curriculum***: Work with California's public school system to build a basic foundation of air quality knowledge among California's children and future citizens.

Objective 4.2 Initiate partnerships that strengthen public education and outreach.

***Background*:** Public education efforts can be expensive. It makes good economic sense to "partner" with others to develop outreach campaigns that address mutually supportive objectives. ARB has undertaken such partnerships in the past, such as the outreach in support of cleaner burning gasoline. ARB intends to expand this approach in the following areas:

Strategies:

- ***Air Districts:*** Work with air districts and CAPCOA (California Air Pollution Control Officers Association) to share, create and disseminate outreach materials for the general public and selected audiences (e.g., schools, business assistance organizations, industrial associations, and transportation groups).

- ***Industry Groups, Environmental and Health Organizations***: Develop outreach partnerships that build upon existing resources (e.g., include air quality information in business and organizational letters).

- ***Transportation Groups***: Work with cutting-edge programs, such as "livable communities," transit, and telecommunications centers, to advance emission reduction opportunities.

Objective 4.3 Develop programs and regulations with full public participation to ensure that the public's needs and concerns are addressed.

Background: The federal Clean Air Act Amendments required the ARB to designate a State Ombudsman to assist small businesses that need to obtain federal operating permits. An Ombudsman office has been established within the ARB that also: facilitates the exchange of information, recommends needed program changes, acts as a source of information, reviews the impacts of regulations on small businesses, and provides related services. On an ongoing basis, the Ombudsman and ARB divisions host meetings, telephone conferences, and workshops to obtain the views of stakeholders (such as private industry, trade organizations, public health advocacy, and environmental groups) regarding the development and implementation of ARB programs and regulations. In addition, during 1996 and 1997, the Ombudsman Office coordinated a series of air quality "forums" in various parts of the state to obtain the viewpoints of various stakeholders regarding the future direction of air quality programs.

Strategies:

- ***Public Participation*:** Conduct consultation meetings and public workshops prior to the Board's consideration of proposed regulations to ensure that stakeholders and the interested public have full and timely opportunity to provide input and comment.

- ***Stakeholder Involvement:*** Promote opportunities for communication among air management policy-makers, political leaders, public health and environmental groups, and other members of the business community and the public.

- ***Information Access:*** Continue to provide direct public access to information on

ARB programs, regulatory actions and meetings through the: "800" Information Hotline, electronic mail, ARB Internet Homepage, and other electronic media.

Objective 4.4 Use evaluation systems to identify the needs, expectations, and satisfaction of ARB's stakeholders.

Background: ARB management supports a quality-focused "customer service" approach throughout agency programs. During 1996, ARB and air districts conducted a series of quality "visioning" forums throughout the state that included representatives from industry, trade organizations, local officials, and environmental and public health advocacy groups. The forums provided an opportunity for stakeholders to evaluate California's air quality system and make suggestions for quality improvements. These strategies will continue the evaluation process:

Strategies:

- ***Stakeholders Forums:*** Hold annual follow-up forums with external stakeholders, and track their rating of ARB's processes.

- ***Customer Service Surveys:*** Continue distributing Cal/EPA customer service survey forms, evaluating responses, and responding to complaints on an ongoing basis.

Objective 4.5 Increase the use of teams to identify and implement creative and workable solutions to problems and to improve quality.

Background: ARB utilizes a project-based team problem-solving approach to accomplish its mission. Teams are currently being used to undertake tasks and ensure quality products, processes, and solutions. The use of teams will increase in the future through the following strategies:

Strategies:

- ***Teams*:** Increase the use of teams within ARB to identify and implement quality solutions, products, programs, and processes.

- ***Management support***: Maintain and increase management support of team activities.

- ***Resources*:** Provide required resources for teams, such as: facilitators, training, sponsorship, technology, supplies and materials.

- ***Training:*** Increase training opportunities within ARB regarding teams and other quality improvement topics.

Goal #5: Assess the economic impacts of air quality programs, and assist businesses in meeting air quality objectives.

Background: Clean air contributes to increased health and well-being, community vitality, and a healthy economy. Air quality is an important consideration in economic development because businesses tend to locate where their employees and families can enjoy a healthy environment. Clean air is also a factor in attracting tourists to recreation areas. Air quality programs and regulations encourage new environmental technology which contributes to California's economy and has become an export industry. ARB works to minimize the cost of clean air strategies by emphasizing cost-effectiveness. ARB is also streamlining regulations and eliminating duplicative requirements. All proposed regulations are examined to analyze their potential economic impacts. In addition, ARB provides extensive information and technical support to assist businesses and industries in meeting air quality objectives.

Objective 5.1 Conduct economic analyses of major regulations, plans, and related actions.

Background: The ARB has conducted economic analyses of proposed regulations for many years. Expanded requirements for economic analyses of proposed regulations were enacted in 1993.[17] In 1996, the State Budget Act created an economics unit at the ARB to conduct the additional analyses now required for ARB activities and to assist other departments and boards within Cal/EPA.*

Strategies:

- ***Economic Impact Analyses:*** Conduct analyses that evaluate the possible impacts of ARB regulations, air quality plans and related actions on the creation, expansion, or elimination of California businesses and jobs. Evaluate all suggested alternatives to regulations with potential impacts exceeding $10 million. Use Cal/EPA guidelines that establish evaluation methodologies and procedures for assessing the economic impacts of regulations.

- ***Cost-Effectiveness Evaluations:*** Analyze the cost-effectiveness of ARB plans and programs in reducing emissions to determine which strategies provide the highest emission reductions benefits for the funding expended. Develop and provide cost-effective analysis methodologies for air districts' use in designing their programs and regulations.

[17]The Administrative Procedure Act, (Government Code sections 11340 *et seq)* also requires agencies to perform cost analyses for alternatives to proposed major regulations. In addition, Executive Order W-144-97, issued in January 1997, expands these requirements to include economic analyses for all existing regulations by 1999.

Objective 5.2 Reduce the time and costs of meeting air quality objectives by eliminating duplicative regulatory requirements.

Background: Businesses with operations in more than one air district can be subject to varying air quality requirements. Voluntary State certification of environmental technologies is one of several ARB initiatives to minimize duplicative requirements and streamline regulatory approval of air pollution control equipment and other environmental technologies. In addition, in 1995, the Office of Environmental Technology was established within ARB to coordinate multi-media[18] environmental technology certification programs throughout Cal/EPA.

Strategies:

- ***Multi-Media Environmental Technology Certification***: Implement and coordinate a multi-media certification program through standardized technical and administrative guidelines. Provide a testing, evaluation, and peer review network to support that program. Promote acceptance of certified technologies by regulators, customers, investors, and export markets.

- ***Multi-Media Pollution Prevention***: Promote pollution prevention by exchanging information with other government agencies and businesses on source reduction, in-process recycling, and substitution of non-toxic hazardous materials.

- ***Equipment Pre-Certification:*** Implement the Equipment and Process Pre-Certification Program to eliminate duplicative engineering analysis and testing requirements of different local air districts.

- ***Portable Equipment Registration*****:** Implement a statewide registration program for portable internal combustion engines to enable owners of such equipment to have flexibility in moving equipment across local district boundaries.

Objective 5.3 Assist California businesses in meeting air quality objectives.

Background: The federal Clean Air Act Amendments of 1990 require each state to develop a program to assist small businesses comply with certain federal air quality regulations. The ARB's Business Assistance Program, which began operating in 1994, provides broader services than required by the Clean Air Act by serving any small business that requests assistance in obtaining an air quality permit, including those required by local air districts.

[18]Multi-media environmental programs are programs which cut across the environmental "media" of air, water, waste management, etc.

Strategies:

- ***Technical Assistance*:** Provide technical assistance and information on new technologies that reduce air pollution cost-effectively.

- ***Information***: Continue to develop and distribute newsletters, fact sheets, compliance assistance manuals and handbooks, and other publications. Expand the ARB's Internet homepage coverage of information helpful for business compliance.

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